ProCurve Networking
HP Innovation

ProCurve Switch 8212zl

The ProCurve Switch 8212zl is a high-performance, highly available, chassis switch platform that enables unified core-to-edge adaptive network solutions and delivers to market the industry's first core switch with a lifetime warranty. It has platform and software high-availability features to ensure system continuity and enhance network productivity. With a full range of connectivity options, comprehensive networking features, advanced security tools, and unified core-to-edge infrastructure and management tools, the Switch 8212zl reduces complexity and provides lower cost of ownership. The ProCurve Switch 8212zl is ideal for customers seeking to cost-effectively meet the stringent availability requirements of today's converged network environments without sacrificing performance or flexibility.

ProCurve Switch 8212zl
(J8715A)

hp invent

Features and benefits

Management

NEW **Remote intelligent mirroring:** mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote 8200zl/6200yl/5400zl/3500yl switch anywhere on the network

• **RMON, XRMON, and sFlow v5:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events

• **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications

• **Command authorization:** leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail

• **Friendly port names:** allow assignment of descriptive names to ports

• **Dual flash images:** provides independent primary and secondary OS files for backup while upgrading or fine-tuning the switch configuration

• **Multiple configuration files:** multiple config files can be stored to the flash image

• **Uni-Directional Link Detection (UDLD):** monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices

• **Unified Core-to-Edge features:** ProCurve portfolio-common feature implementation for faster solution deployment

• **ProCurve Core-to-Edge Device/Network Management tools:** ProCurve portfolio-common device-level tools (CLI, Web GUI, Menu) plus seamless integration into ProCurve Manager Plus (PCM+)/Identity Driven Manager (IDM) network management deployments

Connectivity

• **IEEE 802.3af Power over Ethernet:** provides up to 15.4 W per port to IEEE 802.3af compliant PoE powered devices such as IP phones, wireless access points, and security cameras

• **Pre-standard PoE support:** detects and provides power to pre-standard PoE devices; see list of supported devices in the product FAQ at www.procurve.com

• **Jumbo frames:** on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services

• **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

• **High-density port connectivity:** 12 interface module slots, up to 288 wire-speed 10/100/1000 PoE-enabled ports/48 10-GbE ports per system

• **ProCurve Core-to-Edge accessories:** ProCurve Intelligent Edge family-common interface and service modules, Gigabit optics/10-GbE transceivers, and power supplies enable sparing simplicity

NEW **IPv6:**
- **IPv6 Host:** the switches can be managed and deployed at the edge of IPv6 networks
- **Dual Stack (IPv4/IPv6):** provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
- **MLD Snooping:** forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network
- **IPv6 ready:** the switch hardware can support IPv6 QoS, ACL, routing, tunneling, and security; these features will be available when enabled via software update in follow-on releases

Performance

• **High-speed/capacity architecture:** 692 Gbps crossbar switching fabric provides intra- and inter-module switching with 428 million pps throughput on the purpose-built ProVision ASICs

• **Selectable queue configurations:** increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

• **Scalable system design:** chassis architecture/backplane provides built-in performance capacity/headroom to support next-generation high-density/high-speed connectivity

Resiliency and high availability

• **Proven ASIC and system architecture:** the ProCurve ProVision ASIC and platform architecture, leveraged from ProCurve's successful 5400zl/3500yl/6200yl families of switches, minimizes technology risk and ensures reliable support and flexibility

• **ProCurve zl family componentry:** employs market-proven Intelligent Edge Switch interface modules, optics, and power supplies to minimize technology risk and enhance system reliability

• **Virtual Router Redundancy Protocol:** VRRP allows groups of two routers to dynamically back each other up to create highly available routed environments

• **IEEE 802.1s Multiple Spanning Tree Protocol:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; encompasses IEEE 802.1D Spanning Tree Protocol and IEEE 802.1w Rapid Spanning Tree Protocol

• **IEEE 802.3ad Link Aggregation Control Protocol (LACP) and ProCurve trunking:** support up to 36 trunks, each with up to 8 links (ports) per trunk; trunking across modules is supported

• **Hot-swappable modules:** interface, management, and fabric modules as well as mini-GBIC optics and power supplies can be removed, swapped, or added to the system without interrupting ongoing switch operations

• **Redundant, scalable power design:** add/deploy redundant power supplies to expand power capacity and provide redundancy to ensure network productivity

• **Redundant switch fabric:** dual, performance load-sharing fabric modules provide enhanced system availability and seamless system resiliency

• **Redundant switch management:** dual management modules provide active/standby operation to enhance system availability

• **Redundant, hot-swappable cooling:** redundant fan design and hot-swappable fan tray ensure continuity of operation in case of a single fan failure

• **Passive system design:** passive chassis backplane (no traffic-forwarding active componentry) ensures system reliability and reduces impact of component failure

Layer 2 switching

NEW **IEEE 802.1ad Q-in-Q:** increases the scalability of Ethernet network by providing a hierarchical structure; connects multiple LANs on high-speed campus or metro network

• **ProCurve switch meshing:** dynamically load-balances across multiple active redundant links to increase available aggregate bandwidth

• **VLAN support and tagging:** supports the IEEE 802.1Q standard and 2,048 VLANs simultaneously

• **IEEE 802.1v protocol VLANs:** isolate select non-IPv4 protocols automatically into their own VLANs

• **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs

Layer 3 services

• **UDP helper function:** UDP broadcasts can be directed across router interfaces to specific IP unicast or subnet broadcast addresses and prevent

server spoofing for UDP services such as DHCP

• **Loopback interface address:** defines an address in RIP and OSPF that can always be reachable, improving diagnostic capability

Layer 3 routing

• **Static IP routing:** provides manually configured routing

• **RIP:** provides RIPv1 and RIPv2 routing at media speed

• **OSPF:** includes host-based ECMP to provide link redundancy/scalable bandwidth and NSSA

Security

• **Switch CPU protection:** provides automatic protection against malicious network traffic trying to shut down the switch

• **Virus throttling:** detects traffic patterns typical of WORM-type viruses and either throttles or entirely prevents the ability of the virus to spread across the routed VLANs or bridged interfaces, without requiring external appliances

• **ICMP throttling:** defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic

• **Multiple user authentication methods:**
- **IEEE 802.1X:** industry-standard way of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
- **Web-based authentication:** authenticates from Web browser for clients that do not support 802.1X supplicant; customized remediation can be processed on an external Web server
- **MAC-based authentication:** client is authenticated with the RADIUS server based on client's MAC address

• **Authentication flexibility:**
- **Multiple IEEE 802.1X users per port:** provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
- **Concurrent IEEE 802.1X and Web or MAC authentication schemes per port:** switch port will accept any of IEEE 802.1X and either Web or MAC authentications

• **Access control lists (ACLs):** provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on a per-VLAN or per-port basis

• **Identity-driven ACL:** enables implementation of a highly granular and flexible access security policy specific to each authenticated network user

• **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks

• **BPDU port protection:** blocks Bridge Protocol Data Units (BPDU) on ports that do not require BPDUs, preventing forged BPDU attacks

• **Dynamic IP lockdown:** works with DHCP protection to block traffic from unauthorized host, preventing IP source address spoofing

• **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data

• **Detection of malicious attacks:** monitors 10 types of network traffic and sends a warning when an anomaly that potentially can be caused by malicious attacks is detected

• **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator

• **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network

• **Source-port filtering:** allows only specified ports to communicate with each other

• **TACACS+:** eases switch management security administration by using a password authentication server

• **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote command-line interface (CLI) access over IP networks

• **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch

• **Secure FTP:** allows secure file transfer to/from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file

• **Secure management access:** all access methods--CLI, GUI, or MIB--are securely encrypted through SSHv2, SSL, and/or SNMPv3

• **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon

• **Security banner:** displays a customized security policy when users log in to the switch

NEW **USB Secure Autorun (requires ProCurve Manager Plus):** deploys, diagnoses, and updates switch using USB flash drive; works with secure credential to prevent tampering

NEW **STP Root Guard:** protects root bridge from malicious attack or configuration mistakes

Convergence

• **IP multicast routing:** includes PIM Sparse and Dense modes to route IP multicast traffic

• **IP multicast snooping (data-driven IGMP):** automatically prevents flooding of IP multicast traffic

• **LLDP-MED (Media Endpoint Discovery):** a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

NEW **RADIUS VLAN for voice:** uses standard RADIUS attribute and LLDP-MED to automatically configure VLAN for IP phones

NEW **PoE allocations:** supports multiple methods (automatic, 802.3af class, LLDP-MED, or user specified) to allocate PoE power for optimal energy saving

Quality of Service (QoS)

• **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers

• **Traffic prioritization:** allows real-time traffic classification into 8 priority levels mapped to 8 queues

• **Bandwidth shaping:**
- **Port-based rate limiting:** per-port ingress/egress enforced maximum bandwidth
- **Classifier-based rate limiting:** use ACL to enforce maximum bandwidth for ingress traffic on each port
- **Guaranteed minimum:** per-port, per-queue egress-based guaranteed minimum bandwidth

• **Class of Service (CoS):** sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

Flexibility

• **ProCurve Wireless Edge Services zl Module:** offers secure, advanced wireless services with simplified management and unified wired and wireless operation across the network

• **Complete feature set:** Gigabit PoE for edge VoIP solutions, scalable 10-GbE for enterprise-class distribution-layer implementations, advanced wireless management for comprehensive mobility solutions, and critical high-availability features for mid-market core network deployments

• **Programmable ASIC design:** allows seamless addition of new QoS and security features over time without costly hardware upgrades

Industry-leading warranty

• **Lifetime warranty** : for as long as you own the product, with next-business-day advance replacement (available in most countries)

Services

• 3-year, 4-hour onsite, 13x5 coverage for hardware (UF807E)
• 3-year, 4-hour onsite, 24x7 coverage for hardware (UF808E)
• 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UF809E)
• 3-year, 24x7 SW phone support, software updates (UF810E)
• Installation with minimum configuration, system-based pricing (U4828E)
• Installation with HP-provided configuration, system-based pricing (U4832E)

ProCurve Switch 8212zl

ProCurve Switch 8212zl
J8715A

Specifications

Included accessories	
	1 ProCurve Switch 8200zl Management Module (J9092A)
	2 ProCurve Switch 8200zl Fabric Module (J9093A)
	1 ProCurve Switch 8200zl System Support Module (J9095A)
	1 ProCurve Switch 8212zl Fan Tray (J9094A)
	1 ProCurve Switch 8212zl Chassis/Fan Tray (J9091A)
Ports	
	12 open module slots
	Supports a maximum of 288 auto-sensing 10/100/1000 ports or 48 10-GbE ports or 288 mini-GBICs, or a combination
Power supplies	
	2 x required
	4 open power supply slots
Physical characteristics	
Dimensions	18.7(d) x 17.5(w) x 15.6(h) in. (47.5 x 44.45 x 39.62 cm) (9U height)
Weight	50.45 lb. (22.88 kg)
Memory and processor	
Gigabit Module	ARM9 @ 200 MHz; packet buffer size: 144 MB QDR SDRAM
10G Module	ARM9 @ 200 MHz; packet buffer size: 36 MB QDR SDRAM
Management Module	Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
Mounting	
	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only. Optional 4-post cabinet rail available (see Switch 8212zl Ordering Guide).
Performance	
1000 Mb Latency	< 3.7 µs (FIFO 64-byte packets)
10 Gbps Latency	< 2.1 µs (FIFO 64-byte packets)
Throughput	up to 428 million pps
Routing/Switching capacity	576 Gbps
Switch fabric speed	692 Gbps
Routing table size	10000 entries
MAC address table size	64000 entries
Environment	
Operating temperature	32ºF to 104ºF (0ºC to 40ºC)
Operating relative humidity	15% to 95% @ 131ºF (55ºC), non-condensing
Non-operating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity	15% to 95% @ 149ºF (65ºC), non-condensing
Altitude	up to 10000 ft. (3.1 km)
Acoustic	Power: 64.0 dB; ISO 7779, ISO 9296
Electrical characteristics	

ProCurve Switch 8212zl

Description	Chassis ships without power supplies. Four power-supply slots available; two different power supplies available. See power-supply products for additional specifications.
Maximum heat dissipation	4900 BTU/hr (5170 kJ/hr), (max non-PoE); 7400 BTU/hr (7807 kJ/hr) (max PoE)
Voltage	100-127 / 200-240 VAC
Frequency	50 / 60 Hz
Notes	Power supplies must be ordered separately. Two J8712A or J8713A supplies are required to power the J8715A base system.
Safety	
	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950; IEC 60825
Emissions	
	FCC Class A; FCC part 15 Class A; ICE-003, Canadian Radio Interface Regulation; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity	
EN	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC
Conducted	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
Harmonics	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3
Management	
	ProCurve Manager Plus; ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
Notes	
	Interface/Service modules, power supplies, and redundant management module ordered separately
	RS-232C console port via an RJ-45 connector
	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g. J4858B, J4859C) are required.

ProCurve Switch 8212zl

Standards and Protocols

Device Management
RFC 1591 DNS (client)
HTML and telnet management

General Protocols
IEEE 802.1ad Q-in-Q
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3af Power over Ethernet
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 2548 (MS-RAS-Vendor only)
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 3768 VRRP
RFC 4675 RADIUS VLAN & Priority
UDLD (Uni-directional Link Detection)

IP Multicast
RFC 2362 PIM Sparse Mode
RFC 3376 IGMPv3 (host joins only)
RFC 3973 PIM Dense Mode

IPv6
RFC 1981 IPv6 Path MTU Discovery
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Remote Operations MIB (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client only)
RFC 3513 IPv6 Addressing Architecture
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4541 IGMP & MLD Snooping Switch

MIBs
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 1850 OSPFv2 MIB
RFC 2021 RMONv2 MIB
RFC 2096 IP Forwarding Table MIB
RFC 2613 SMON MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB

Network Management
IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

OSPF
RFC 2328 OSPFv2
RFC 3101 OSPF NSSA

QoS/Cos
RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)

Security
IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2865 RADIUS (client only)
RFC 2866 RADIUS Accounting
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

ProCurve Switch 8212zl

Accessories

ProCurve Switch zl 875W Power Supply (J8712A)
Standard 875 W power supply for zl series switches. Supplies 273 W for PoE power and 600 W for switch power.

Physical characteristics
Dimensions: 6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
Weight: 7.05 lb. (3.2 kg)

Environment
Operating temperature: 32ºF to 131ºF (0ºC to 55ºC)
Operating relative humidity: 15% to 95%, non-condensing
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing
Altitude: up to 10000 ft. (3 km)

Electrical characteristics
Voltage: 100-127 / 200-240 VAC
Current: 12 / 5.7 A
Power consumption: 1050 W
Frequency: 50 / 60 Hz

Notes

J8712A supplies 600 W chassis power and 273 W PoE power.

One J8712A can power the J8697A chassis.

Two J8712A supplies are required to power the J8698A chassis.

Two J8712A supplies are required to power the J8715A chassis.

See the Ordering Guide for more details on power supply selection for PoE power.

When used in the J8714A power shelf, the following specs apply (at full load):
• Heat dissipation: 250 BTU/hr (263 kJ/hr) @ 110 V, 210 BTU/hr (222 kJ/hr) @ 220 V
• Maximum current: 3.2 A @ 110 V, 1.7 A @ 220 V

ProCurve Switch zl 1500W Power Supply (J8713A)
High-power 1500 W power supply for zl series switches. Supplies 900 W for PoE power plus 600 W for switch power. 220–240 V only.

Physical characteristics
Dimensions: 6.05(d) x 7.45(w) x 5.1(h) in. (15.37 x 18.92 x 12.95 cm)
Weight: 7.5 lb. (3.4 kg)

Environment
Operating temperature: 32ºF to 131ºF (0ºC to 55ºC)
Operating relative humidity: 15% to 95%, non-condensing
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing
Altitude: up to 10000 ft. (3 km)

Electrical characteristics
Voltage: 200-240 VAC
Current: 10 A
Power consumption: 1800 W
Frequency: 50 / 60 Hz

Notes
220–240 V only. Installation of the J8713A reduces the chassis altitude specification to 10,000 ft. (3677m).
• J8713A supplies 600 W chassis power and 900 W PoE power.
See the Ordering Guide for more details on power supply selection for PoE power.

Units shipped to North America include a NEMA L6-20P twist lock power cord. Non-locking NEMA 6-20P optionally available - see the Ordering Guide for more details.

When used in the J8714A power shelf, the following specs apply (at full load):
• Heat dissipation: 450 BTU/hr (475 kJ/hr) @ 220V
• Maximum current: 5.1 A @ 220 V

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ProCurve Switch zl Power Supply Shelf (J8714A)
A rack-mountable chassis with two slots for Switch zl power supplies to supply additional PoE power to a zl switch beyond what can be provided by the switch internal power supplies alone

Ports
0 redundant power supply port
2 external power supply ports
Restrictions: PoE power available depends on power supplies installed

Physical characteristics
Dimensions: 9.73(d) x 17.44(w) x 5.2(h) in. (24.71 x 44.3 x 13.2 cm) (3U height)
Weight: 9.26 lb. (4.2 kg)(no power supplies installed)

Mounting
3U rack mountable, either forward or rear facing. Two Power Shelf units can be mounted front-to-front in a 4-post rack, taking only 3U total to conserve rack space.

Environment
Operating temperature: 32ºF to 131ºF (0ºC to 55ºC)
Operating relative humidity: 15% to 95% @ 104ºF (40ºC), non-condensing
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95% @ 104ºF (40ºC), non-condensing
Altitude: up to 10000 ft. (3 km)
Acoustic: Power: 52.9 dB Pressure: 42.9 dB

Electrical characteristics
Description: Power draw and heat dissipation for the power shelf are dependent on the power supplies installed.
Notes: For heat dissipation and power requirements of the power shelf, find and add together these figures for the 1 or 2 power supplies actually installed.

Notes
The ProCurve Switch zl Power Supply Shelf has two slots for zl power supplies. It supplies PoE power only to zl switches. For yl switches, see the ProCurve 620 Redundant/External Power Supply.

Power shelf depth includes 0.75 in. (1.9 cm) due to the power supply handles.

Power supplies not included.

ProCurve 10-GbE X2-SC SR Optic (J8436A)
An X2 form-factor transceiver that supports the 10-Gigabit SR standard, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.

Ports
1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-SR)
Duplex: full only

Physical characteristics
Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
Weight: 0.64 lb. (0.29 kg)

Environment
Operating temperature: 32ºF to 104ºF (0ºC to 40ºC)
Operating relative humidity: 15% to 95%, non-condensing

Cabling

Type:
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively

Maximum distance:
• 62.5 µm multimode cable @ 160 MHz*km = 2-26 meters• 62.5 µm multimode cable @ 200 MHz*km = 2-33 meters• 50 µm multimode cable @ 400 MHz*km = 2-66 meters• 50 µm multimode cable @ 500 MHz*km = 2-82 meters• 50 µm multimode cable @ 2000 MHz*km = 2-300 meters

Notes
850 nm serial optics

For fiber patch cords, use UPC finish/polish (APC is not recommended)

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ProCurve 10-GbE X2-SC LR Optic (J8437A)
An X2 form-factor transceiver that supports the 10-Gigabit LR standard, providing 10-Gigabit connectivity up to 10 km on singlemode fiber.

Ports
1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-LR)
Duplex: full only

Physical characteristics
Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
Weight: 0.16 lb. (0.07 kg)

Environment
Operating temperature: 32ºF to 104ºF (0ºC to 40ºC)
Operating relative humidity: 15% to 95%, non-condensing

Cabling

Type:
• Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

Maximum distance:
• 9/125 µm single-mode cable = 2 m-10 km

Notes
1310 nm serial optics

Conditioning patch cord cables are not supported

For fiber patch cords, use UPC finish/polish (APC is not recommended)

ProCurve 10-GbE X2-SC ER Optic (J8438A)
An X2 form-factor transceiver that supports the 10-Gigabit ER standard, providing 10-Gigabit connectivity up to 30 km on singlemode fiber (40 km on engineered links).

Ports
1 SC 10-GbE port (IEEE 802.3ae Type 10Gbase-ER)
Duplex: full only

Physical characteristics
Dimensions: 3.48(d) x 1.42(w) x 0.43(h) in. (8.84 x 3.61 x 1.09 cm)
Weight: 0.15 lb. (0.07 kg)

Environment
Operating temperature: 32ºF to 104ºF (0ºC to 40ºC)
Operating relative humidity: 15% to 95%, non-condensing

Cabling

Type:
• Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

Maximum distance:
• 30 km (40 km on engineered links)

Notes
1550 nm serial optics

Conditioning patch cord cables are not supported

For fiber patch cords, use UPC finish/polish (APC is not recommended)

ProCurve 10-GbE CX4 Media Converter (J8439A)
An optical media converter that connects to CX4 ports, providing 10-Gigabit connectivity up to 300 meters on multimode fiber.

Physical characteristics
Dimensions: 2.83(d) x 0.98(w) x 0.59(h) in. (7.19 x 2.49 x 1.5 cm)
Weight: .06 lb. (0.03 kg)

Cabling

Maximum distance:
• 62.5 µm multimode cable @ 150 MHz*km = 1-50 meters• 50 µm multimode cable @ 500 MHz*km = 1-100 meters• 50 µm multimode cable @ 2000 MHz*km = 1-300 meters

Notes
Duplex: full

Cabling type: 12 fiber 62.5/125 µm (core/cladding) diameter or 12 fiber 50/125 µm diameter, multimode ribbon cable with MPO/MTP to MPO/MTP connectors

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ProCurve Switch 8212zl

ProCurve 10-GbE X2-CX4 Transceiver (J8440B)
An X2 form-factor transceiver with a CX4 connector that provides 10-Gigabit connectivity up to 15 meters over CX4 (copper) cable.

Ports
1 CX4 transceiver port

Physical characteristics
Dimensions: 3.54(d) x 1.42(w) x 0.53(h) in. (8.99 x 3.61 x 1.35 cm)
Weight: 0.18 lb. (0.08 kg)

Environment
Operating temperature: 32ºF to 131ºF (0ºC to 55ºC)
Operating relative humidity: 15% to 95% @ 149ºF (65ºC), non-condensing

Cabling

Maximum distance:
• 15 m using CX4 cables• 300 m using optical media converters and multimode fiber cable

Notes
Connector: CX4; Duplex: full

Use CX4 10-GbE cable (0.5-15 m) or ProCurve 10-GbE CX4 Media Converter (J8439A).

For suggested vendors of CX4 cables, please see the "Cabling" answers on the "ProCurve 10-GbE Transceivers" FAQs Web page.

NEW ProCurve 100-FX SFP-LC Transceiver (J9054B)
A small form-factor pluggable (SFP) 100Base-FX transceiver that provides 100 Mbps full-duplex connectivity up to 2 km on multimode fiber.

Ports
1 LC 100Base-FX port (IEEE 802.3u Type 100Base-FX)
Duplex: half or full

Physical characteristics
Dimensions: 2.7(d) x 0.54(w) x 0.48(h) in. (6.86 x 1.38 x 1.22 cm)
Weight: 0.06 lb. (0.03 kg)

Environment
Operating temperature: 32ºF to 158ºF (0ºC to 70ºC)
Operating relative humidity: 5% to 95%
Non-operating/Storage temperature: -40ºF to 185ºF (-40ºC to 85ºC)
Non-operating/Storage relative humidity: 5% to 85%
Altitude: up to 10000 ft. (3 km)

Cabling

Type:
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively

Maximum distance:
• 2 km (full duplex) or 412 m (half duplex)

Notes
See the document titled "Support for the J9054B 100-FX SFP-LC Transceiver", on the "ProCurve Mini-GBICs and SFPs" Manuals Web page, for supported platforms and minimum software requirements to support this product.

ProCurve Gigabit-SX-LC Mini-GBIC (J4858C)
A small form factor pluggable (SFP) Gigabit SX transceiver that provides a full-duplex Gigabit solution up to 550 m on multimode fiber.

Ports
1 LC 1000Base-SX port (IEEE 802.3z Type 1000Base-SX)
Duplex: full only

Physical characteristics
Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm)
Weight: 0.04 lb. (0.02 kg)

Cabling

Type:
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively

Maximum distance:
• 220 m (62.5 µm core diameter, 160 MHz/km bandwidth)• 275 m (62.5 µm core diameter, 200 MHz/km bandwidth)• 500 m (50 µm core diameter, 400 MHz/km bandwidth)• 550 m (50 µm core diameter, 500 MHz/km bandwidth)

ProCurve Switch 8212zl

ProCurve Gigabit-LX-LC Mini-GBIC (J4859C)
A small form factor pluggable (SFP) Gigabit LX transceiver that provides a full-duplex Gigabit solution up to 10 km (singlemode) or 550 m (multimode).

Ports
1 LC 1000Base-LX port (IEEE 802.3z Type 1000Base-LX)
Duplex: full only

Physical characteristics
Dimensions: 2.24(d) x 0.54(w) x 0.486(h) in. (5.69 x 1.37 x 1.23 cm)
Weight: 0.04 lb. (0.02 kg)

Cabling

Type:
• Either single mode or multimode
• 62.5/125 µm or 50/125 µm (core/cladding) diameter, graded-index, low metal content, multimode fiber optic, complying with ITU-T G.651 and ISO/IEC 793-2 Type A1b or A1a, respectively
• Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

Maximum distance:
• 10 km (single mode) or 550 m (multimode)

Notes
A mode conditioning patch cord may be needed in some multimode fiber installations.

ProCurve Gigabit-LH-LC Mini-GBIC (J4860C)
A small form factor pluggable (SFP) Gigabit LH transceiver that provides a full-duplex Gigabit solution up to 70 km on singlemode fiber.

Ports
1 LC 1000Base-LH port (no IEEE standard exists for 1550 nm optics)
Duplex: full only

Physical characteristics
Dimensions: 2.17(d) x 0.60(w) x 0.46(h) in. (5.5 x 1.53 x 1.18 cm)
Weight: 0.04 lb. (0.02 kg)

Cabling

Type:
• Low metal content, single-mode fiber-optic, complying with ITU-T G.652 and ISO/IEC 793-2 Type B1

Maximum distance:
• 70 km

ProCurve Gigabit 1000Base-T Mini-GBIC (J8177B)
A small form-factor pluggable (SFP) Gigabit copper transceiver that provides a full-duplex Gigabit solution up to 100 m on Category 5 or better cable.

Ports
1 RJ-45 1000Base-T port (IEEE 802.3ab Type 1000Base-T)
Duplex: full only

Physical characteristics
Dimensions: 2.71(d) x 0.54(w) x 0.55(h) in. (6.88 x 1.37 x 1.4 cm)
Weight: 0.06 lb. (0.03 kg)

Cabling

Type:
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T

Maximum distance:
• 100 m

Notes
When used in the ProCurve Switch gl 20-Port 10/100/1000 Module (J4908A), the J8177B mini-GBIC can be installed in either the upper or lower mini-GBIC port, but will block access to the other port.

See the document titled "Support for the J8177B 1000Base-T Mini-GBIC," on the "ProCurve Mini-GBICs and SFPs" Manuals Web page, for supported platforms and minimum software requirements to support this product.

The J8177B gigabit copper mini-GBIC is not supported on dual-personality ports.

Wireless Access Controllers

ProCurve Switch 8212zl

Wireless Access Controllers

ProCurve Wireless Edge Services zl Module (J9051A)
Working in conjunction with ProCurve radio ports, the ProCurve Wireless Edge Services zl Module provides centralized wireless LAN management of advanced wireless services, enabling a highly secure, multi-service network on ProCurve zl switches.

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 2.05 lb. (0.93 kg)

Environment
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing

Wireless interface
Microsoft Internet Explorer 5.5 or higher

Standards and protocols
Device Management: RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1
HTML and telnet management
General Protocols: IEEE 802.1p Priority
IEEE 802.1Q VLANs
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 894 IP over Ethernet
RFC 959 File Transfer Protocol (FTP)
RFC 1541 DHCP
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 3046 DHCP Relay Agent Information Option
IPv6: RFC 3162 RADIUS and IPv6
MIBs: RFC 1213 MIB II
RFC 1493 Bridge MIB
Mobility: IEEE 802.11a High Speed Physical Layer in the 5 GHz Band
IEEE 802.11b Higher-Speed Physical Layer Extension in the 2.4 GHz Band
IEEE 802.11g Further Higher Data Rate Extension in the 2.4 GHz Band
IEEE 802.11i Medium Access Control (MAC) Security Enhancements
Network Management: RFC 3164 BSD syslog Protocol
RFC 3176 sFlow
SNMPv1/v2c/v3
Security: IEEE 802.1X Port Based Network Access Control
RFC 2138 RADIUS Authentication
RFC 2548 Microsoft Vendor-specific RADIUS Attributes
RFC 2809 L2TP Compulsory Tunneling via RADIUS
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
RFC 2882 NAS Requirements: Extended RADIUS Practices
RFC 3576 Dynamic Authorization Extensions to RADIUS
RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
RFC 3580 IEEE 802.1X RADIUS
RFC 4590 RADIUS Extension for Digest Authentication
Secure Sockets Layer (SSL)
SSHv2 Secure Shell
WPA (Wi-Fi Protected Access)

ProCurve Redundant Wireless Services zl Module (J9052A)
The ProCurve Redundant Wireless Services zl Module automatically adopts ProCurve radio ports if the primary Wireless Edge Services zl Module is unavailable or fails.

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 2.05 lb. (0.93 kg)

Environment
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing

zl Modules

ProCurve Switch 8212zl

zl Modules (continued)

NEW ProCurve Switch 8200zl Management Module (J9092A)
Module for use with Switch 8212zl chassis. With RJ-45 serial console port for out-of-band management access. Order module to provide for a dual, redundant mgmt module deployment (base system J8715A comes with a single module) or for onsite sparing.

Ports
1 RJ-45 serial console port

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.4(h) in. (26.16 x 20.65 x 3.55 cm)
Weight: 1.20 lb. (0.54 kg)

Environment
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing

NEW ProCurve Switch 8200zl Fabric Module (J9093A)
Switch 8212zl Fabric Module. Ordered by customers for onsite sparing only (base configuration J8715A includes required fabric modules).

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 1.65 lb. (0.75 kg)

Environment
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing

NEW ProCurve Switch 8200zl System Support Module (J9095A)
Switch 8212zl System Support Module. Ordered by customers for onsite sparing only (8212zl base system J8715A comes with required module).

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.4(h) in. (26.16 x 20.65 x 3.55 cm)
Weight: 1.00 lb. (0.45 kg)

Environment
Non-operating/Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
Non-operating/Storage relative humidity: 15% to 95%, non-condensing

ProCurve Switch zl 24-Port 10/100/1000 PoE Module (J8702A)
24-port 10/100/1000 PoE module for zl series switches

Ports
24 RJ-45 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
Media Type: Auto-MDIX
Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 2.16 lb. (0.98 kg)

Cabling

Type:
• 1000Base-T: Category 5 (5E or better recommended), 100 Ω differential 4-pair unshielded twisted pair (UTP) or shielded twisted pair (STP) balanced, complying with IEEE 802.3ab 1000Base-T

ProCurve Switch 8212zl

zl Modules (continued)

ProCurve Switch zl 20-Port 10/100/1000 + 4-Port Mini-GBIC Module (J8705A)
20-port 10/100/1000 PoE + 4-port mini-GBIC module for zl series switches

Ports
4 open mini-GBIC (SFP) slots
20 RJ-45 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T)
Media Type: Auto-MDIX
Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 2.2 lb. (1 kg)

Notes
When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.

When installed in a zl chassis, the J8705A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).

ProCurve Switch zl 24-Port Mini-GBIC Module (J8706A)
24-port mini-GBIC module for zl series switches

Ports
24 open mini-GBIC (SFP) slots

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 2.01 lb. (0.91 kg)

Notes
When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.

When installed in a zl chassis, the J8706A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).

ProCurve Switch zl 4-Port 10-GbE X2 Module (J8707A)
4-port 10-GbE X2 module for zl series switches

Ports
4 open 10-GbE X2 transceiver slots

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 1.74 lb. (0.79 kg)

Environment
Operating temperature: 32ºF to 104ºF (0ºC to 40ºC)

Notes
When installed in a zl chassis, the J8707A module limits the operating temperature range of the chassis to 32°F to 104°F (0°C to 40°C).

ProCurve Switch zl 4-Port 10-GbE CX4 Module (J8708A)
4-port 10-GbE CX4 module for zl series switches

Ports
4 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4)
Duplex: full only

Physical characteristics
Dimensions: 10.3(d) x 8.13(w) x 1.75(h) in. (26.16 x 20.65 x 4.45 cm)
Weight: 1.74 lb. (0.79 kg)

Environment
Operating temperature: 32ºF to 131ºF (0ºC to 55ºC)

Cabling
Maximum distance:
• 15 m using CX4 cable• 300 m using optical media converters and multimode fiber cable

Notes
Use CX4 10-GbE cable (0.5 m-15 m) or ProCurve 10-GbE CX4 Media Converter (J8439A).

No CX4 cables are included with this module.

NEW ProCurve Switch 8212zl Chassis/Fan Tray (J9091A)
8212zl chassis and fan tray. Ordered by customers for onsite sparing only (does not include required management/fabric/system support modules). Order J8715A base system for initial purchases.

Physical characteristics
Dimensions: 4(d) x 4(w) x 4(h) in. (10.16 x 10.16 x 10.16 cm)

NEW ProCurve Switch 8212zl Fan Tray (J9094A)
Switch 8212zl Fan Tray. Ordered by customers for onsite sparing only (base system J8715A comes with required fan tray).

Physical characteristics
Dimensions: 5(d) x 5(w) x 5(h) in. (12.7 x 12.7 x 12.7 cm)

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